P-3 Orion - WFF 10/17/18

Aircraft: P-3 Orion - WFF (See full schedule)
Flight Number: ORACLES Science Flight #10
Payload Configuration: ORACLES
Nav Data Collected: No
Archive Data: 20181017 (114 binary files; 24 archive (plain-text) files; 39 image files)
Total Flight Time: 8.5 hours
Submitted by: Mike Cropper on 10/17/18
Flight Segments:

From:	FPST	**To:**	FPST
Start:	10/17/18 07:45 Z	**Finish:**	10/17/18 16:15 Z
Flight Time:	8.5 hours		
Log Number:	19P018	**PI:**	Jens Redemann
Funding Source:	Hal Maring - NASA - SMD - ESD Radiation Science Program		
Purpose of Flight:	Science		
Miles Flown:	2000 miles		

Flight Hour Summary:

	18P004	19P018
Flight Hours Approved in SOFRS	188.5	
Flight Hours Previously Approved		144
Total Used	44.5	110
Total Remaining		34

19P018 Flight Reports

Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining	Miles Flown
10/02/18	ORACLES Science Flight #3	Science	8.5	8.5	135.5	1940
10/03/18	ORACLES Science Flight #4	Science	8.5	17	127	1970
10/05/18	ORACLES Science Flight #5	Science	9	26	118	2000
10/07/18	ORACLES Science Flight #6	Science	8.4	34.4	109.6	2000
10/10/18	ORACLES Science Flight #7	Science	8.3	42.7	101.3	1970
10/12/18	ORACLES Science Flight #8	Science	5.3	48	96	800
10/15/18	ORACLES Science Flight #9	Science	7.8	55.8	88.2	1700
10/17/18	ORACLES Science Flight #10	Science	8.5	64.3	79.7	2000
10/19/18	ORACLES Science Flight #11	Science	8	72.3	71.7	1800
10/21/18	ORACLES Science Flight #12	Science	8.2	80.5	63.5	1800
10/23/18	ORACLES Science Flight #13	Science	8.1	88.6	55.4	1800
10/25/18	ORACLES Transit #1	Transit	7.8	96.4	47.6	2009
10/26/18	ORACLES Transit #2	Transit	7	103.4	40.6	2100
10/27/18	ORACLES Transit #3	Transit	5.8	109.2	34.8	1692

10/27/18	ORACLES Transit#4	Transit	0.8	110	34	72

Source URL: https://airbornescience.nasa.gov/flight_reports/P-3_Orion_-_WFF_10_17_18#comment-0

Page Last Updated: April 22, 2017

Page Editor: Brad Bulger

NASA Official: Bruce A. Tagg

Related Science Report:

ORACLES - P-3 Orion - WFF 10/17/18 Science Report

Mission: ORACLES
Mission Summary:

This was a Target of Opportunity flight aimed at sampling younger aerosol off the coast of Angola. The first priority was intensive in-situ aerosol sampling; if possible, the hope was to also get a radiation wall / square spiral out of it for SSFR/4STAR retrieval of spectral absorption and single scatter albedo. The flight plan, which we largely followed, was to transit south on 7E to 7S; then go east-bound to 10.5E. There, do the radiation wall along a north-south line ~7.0-7.6E. Then transit from 7S, 10.5E west to 7S, 5E and transit back to STM on 5E, with some in-situ sampling along the way if time/fuel permits.
We encountered significant mid-level clouds on the south- and east- bound transit legs to the work area, requiring us to adjust alitude frequently to keep below the mid-level clouds (thereby allowing for HSRL retrievals). When we arrived at the work area there were still mid-level clouds, so we changed the usual order of the radiation wall and instead stepped down from high altitude, doing in-situ aerosol legs on the way down; then did the below-cloud, in-cloud and above-cloud legs before doing a square spiral back up to altitude.
Unfortunately mid-level clouds interfered with the square spiral SSFR/4STAR measurements. We were able to do some more in-situ sampling on the leg back to STM on 5E.
This flight was most notable for the extremely high concentrations of aerosol on the 7-7.6S, 10.5E line at ~5-7,000' altitude. This was the most concentrated aerosol seen yet in ORACLES. In addition, based on preliminary in-flight observations, it was younger than other aerosol sampled during ORACLES.

File:
PRF10_Y18_1017_FlightScienceReport.pdf
Submitted by: Sarah Doherty on 01/30/19

Flight Reports began being entered into this system as of 2012 flights. If there were flights flown under an earlier log number the flight reports are not available online.

18P004 Flight Reports

Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining	Miles Flown
09/17/18	ORACLES ATF	Check	1.3	1.3	187.2	0
09/19/18	ORACLES PTF	Check	3.7	5	183.5	0
09/21/18	ORACLES Transit #1	Transit	6.3	11.3	177.2	1716
09/22/18	ORACLES Transit #2	Transit	8.2	19.5	169	2131
09/24/18	ORACLES Transit #3/Science Flight	Transit	9.3	28.8	159.7	2500
09/27/18	ORACLES Science Flight #1	Science	8	36.8	151.7	1875
09/30/18	ORACLES Science Flight #2	Science	7.7	44.5	144	2400